The Students' Perception And Motivation To Be Prospective Chemistry Teachers Regarding Online Learning During COVID-19

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Abstract: The importance of this research is to get to know the students' perceptions and motivation of the prospective chemistry teachers in facing online learning during the Covid-19 pandemic. The research design used was descriptive qualitative research. The research was conducted on students of the Chemistry Education Study Program FKIP University of Lampung in 2017, 2018, and 2019. Data collection was carried out by using a questionnaire by means of google form and learning record data in the online data-log mode edusmart.fkip.unila.ac.id. and vclass.unila.ac.id. The results indicated that (1) the interaction pattern between the lecturers and students was quite good in terms of giving assignments and discussions. In terms of feedback and learning reflection, it, however, needs to be improved (2) Students' perception of online learning is less positive, this is indicated by the number of students who are disappointed because of learning methods uninteractive, (3) students are still not motivated yet to take online lectures due to limitation of internet signals and seem to consider it as assignments only.

Keywords: COVID-19 pandemic, online learning, motivation, perception.

Abstrak: *Pentingnya penelitian ini adalah untuk mengetahui persepsi dan motivasi siswa calon guru kimia dalam menghadapi pembelajaran daring selama pandemi Covid-19. Rancangan penelitian yang digunakan berupa penelitian kualitatif deskriptif. Penelitian dilakukan pada mahasiswa Program Studi Pendidikan Kimia FKIP Universitas Lampung tahun 2017, 2018, dan 2019. Pengumpulan data dilakukan dengan menggunakan kuisioner melalui google form dan data rekam pembelajaran di data-log mode online edusmart.fkip.unila.ac.id. dan vclass.unila.ac.id. Hasil penelitian menunjukkan bahwa (1) pola interaksi dosen dan mahasiswa cukup baik dalam hal pemberian tugas dan diskusi. Namun perlu ditingkatkan dalam hal umpan balik dan refleksi pembelajaran., (2) persepsi siswa terhadap pembelajaran online kurang positif, hal ini ditunjukkan dengan banyaknya siswa yang kecewa dengan strategi pembelajaran online yang dinilai kurang interaktif., (3) mahasiswa masih belum termotivasi untuk mengikuti perkuliahan online karena terkendala sinyal.*

Kata kunci: *Pandemi COVID-19, Pembelajaran Daring, Motivasi, Persepsi.*

▪ **INTRODUCTION**

In early 2020, it was said that the corona virus had spread to more than 26 countries (Peeri, Shrestha, Rahman, Zaki, Tan, Bibi, ….., & Haque, 2020) and as of February 2020 it had spread in 29 countries around the world with a mortality rate of 2.8% or 2,126 out of 75,282 cases (Center for Systems Science and Engineering, 2020). Based on data in March 2020 on that page as to handling the corona virus in Indonesia, the spread of covid-19 in Indonesia continues to occur and more than 1,500 positive cases with the number of mortality cases more than 100 people (Covi

d19.go.id., 2020) The World Health Organization or WHO also declared the situation as a pandemic (Sohrabi, Alsafi, O'Neill, Khan, Kerwan, Al-Jabir, Iosifidis, & Agha, 2020; Mahase, 2020). Around the month of March, the Indonesian Government through the National Disaster Mitigation Agency declared that the Covid-19 pandemic is as a national disaster and enters the phase as a national emergency (Khasanah, Pramudibyanto, & Widuroyekti, 2020). The Ministry of Education and Culture (Kemdikbud) through Circular number 36962/MPK.A/HK/2020 concerning Online Learning and Working From Home in the Context of Preventing the Spread of Corona Virus Disease (COVID-19), therefore, provides the instructions to universities to carry out remote lectures through various online modes such as video conferencing, as well as other online learning tools to prevent further spread of the virus (Kemdikbud.go.id., 2020). Home as an effort to mitigate the spread of the corona virus, one of which says that the educational service process shall be carried out through online platform, for some urgent situation that can not be done via online platform, then it should be physically carried out with one condition that it should be implemented by strictly implementing the Covid-19 prevention protocol.

With the issuance of this policy, all lectures at universities including the University of Lampung apply online lectures by harnessing various platforms that are familiar to the lecturers and the students. Online learning is learning method that uses internet networks with accessibility, connectivity, flexibility, and the ability to generate various types of learning interactions (Moore, Dickson, & Galyen, 2011). According to the research of Zhang, Zhao, Zhou, & Nunamaker (2004), it stated that the use of the internet and multimedia technology are able to alter the way of conveying knowledges and can be an alternative learning that is carried out in traditional classrooms. Ryan (2013) in his research revealed that the students' assessment towards technology in learning is positive, which means that the students enjoy using it. Milman (2015) also states that the digital technology can facilitate both the students and the lecturers in the learning process without having to meet physically in person or being in different places. It is, however, different from the research results carried out by Jaggars, Edgecombe, & Stacey (2013) who found that in online lectures, many students turned out to fail and the students with low GPA preferred to withdraw themselves when learning online compared to face-to-face learning. According to this fact, the chemistry education community continues to improve online lectures with blended learning (Pienta, 2013).

The chemistry learning has been done a lot through a blended learning method, but the chemistry learning fully implemented online still needs to be researched. Owing to this fact, learning chemistry is learning how to understand the contribution of chemistry in various contexts of daily life, the development of thinking skills, and how students have critical but positive attitude towards chemistry and its applications (Shwartz, Dori, and Treagust, 2013). Due to lectures that are completely carried out on online platform because of the Covid-19 pandemic, this study is aimed to determine the

extent of the role of online learning in influencing perceptions and motivating students and to determine the interaction patterns between lecturers and students in the time of pandemic. The research questions that, therefore, need to be answered are as follows (1) What are the interaction patterns between the students and lecturers on online learning in the time of COVID-19 pandemic?, (2) What are the students' perceptions of online learning resulted from Covid-19? (3) How is the students' motivation of prospective chemistry teachers towards online learning resulted from covid-19? and (4) What are the obstacles faced in running online learning as a result of Covid-19?

▪ **METHOD**

This research design is a kind of descriptive qualitative research. The data collected is the key or answer to what is being researched. In this case, the data collected is in the form of interviews, lecture notes, documents and notes. This qualitative descriptive study aims to describe, explain and analyze the interaction between lecturers and students in online lectures for chemistry education students at Lampung University as well as students' perceptions regarding online lectures as a result of the current corona pandemic.

The data collection technique harnesses an instrument in the form of a questionnaire by distributing it via google form to students of the 2017-2019 batch of FKIP University Chemistry Education with the consideration that students of 2016 batch are no longer active in learning. The questionnaire distributed has 16 questions about interactions between lecturers and students, 16 questions about student perceptions regarding online learning, and 11 questions about student motivation in implementing online learning and 5 questions about obstacles. There are 48 questions in total.

Questions about the interaction between lecturers and students are in the form of "Yes" and "No" answer patterns including questions with direct answers. With regards to students' motivation, please do not use the "Yes" and "No" answer pattern, but use a scale of 4, namely an assessment of the answers with a score of 1 – 4, with this following category ; very agree, agree, less agree, and disagree. The student perception data is later measured by using a scale of 4, i.e very agree, agree, less agree, and disagree, and direct answers in the form of short descriptions submitted by the students.

The research subjects collected as a research data for analysis are students who have filled out a questionnaire. Based on the questionnaire filling, there were 84 students as the subject of this research, with the following details : 26 students of the year 2017 batch, 28 students of 2018 batch, and 30 students of 2019 batch.

The analysis used in this research is a descriptive analysis by describing and interpreting the meaning of the data collected, so as to obtain a general and comprehensive picture of the actual current situation of a certain phenomenon. This descriptive data analysis technique is done in three steps, i.e Data Reduction, Data Display, and Conclusion Drawing.

To measure the validity of the research results, a validity analysis is later carried out which includes the trust degree analysis (Credibility), Transferability, Dependability, and Confirmability. The confidence degree is carried out through triangulation and referential adequacy.

▪ **RESULT AND DISCUSSION**

The research was conducted during July-August 2020. The questionnaire was made during June - July 2020 and has been validated and revised up to 3 times. Questionnaires were distributed during August 2020 toward 84 students as respondents. The research outcome can be described as follows:

1) The interaction patterns between Lecturers and Students during online learning.

The reduction result of the questionnaire data with the "Yes" and "No" statement in the assessment of the interaction patterns between lecturers and students, shows that the lecturers and students have mastered the IT usage so that there are no significant obstacles in harnessing the IT usage, several lecturers have provided good feedback in the form of comments, inputs, scores and answers to the problems quickly on student activities during online lectures, lecturers are doing the teaching in a structured manner according to the RPS that has been distributed to students, and the interaction between the lecturers and students is quite good, as indicated by the feedback, the media usage in the form of audio, video, visuals and text as well as the usage of chat features and assignments along with reflections.

Based on the data reduction in direct questions on the interaction patterns between the lecturers and students, it shows that some lecturers give assignments only without any feedback, this causes students have difficulty to understanding the lecture material because they do not get any feedback and reinforcement from the lecturers; reflection towards learning as a whole is still lacking; students complain a lot because they receive many assignments during online learning compared to when learning offline; and the students find themselves difficulties in attending lectures due to the learning strategies used by some lecturers in online learning, and they feel that these are not that interesting and monotonous..

2) The Student Motivation for Online Learning

Data on student motivation towards online learning can be seen in Table 1 below.

Table 1. Observations Summary of Student Motivation towards Online Learning

No	Indicator	descriptors	Remarks
1	Attention	1. First impression towards online learning .	10.30% strongly believe that online learning is easy; 28.20% believe; 46.20% less believe it; 15.4% do not believe it.
		2. Beliefs that there are something interesting on online learning	7.70% found online learning very interesting; 25.60% interesting; 43.60% less interesting; 23.10% not interesting.
2	Relevance	1. Understanding the material based on prior knowledge through online learning.	5.10% strongly agree that through online learning students are able to connect prior knowledge with the material to be delivered; 38.50% agree; 47.40% less agree; 9,00% disagree.
		2. The usage of online learning methods can increase learning enthusiasm.	10.30% strongly agree if the method used is correct; 41.00% agree; 42.30% less agree 6.40% disagree.
3	Confidence	1. Material comprehension through online	5.10% strongly agree that they have difficulty to understanding the material through online learning; 6.40% agree; 41,00% less agree;

		learning	47.40% disagree.
		2. Task suitability through online learning.	6.40% strongly agreed with the number and the assignment quality given; 24.40% agree; 61.50% less agree; 7.70% disagree.
4	Satisfaction	1. Satisfaction after completing the assignment	3.80% very satisfied with the achievement after completing the assignment; 28.20% satisfied; 44.90% less satisfied; 23.10% dissatisfied
		2. Understanding after reading the description given from the lecturer	6.40% strongly agree if the material easily understandable after reading the description given by the lecturer; 29.50% agree; 51.30% less agree; 12.80% disagree.
		3. Recognition in the form of values, input and comments	5.10% felt very appreciated through feedback from lecturers; 24.40% felt appreciated; 55.10% felt underappreciated; 15.40% felt no appreciation from the lecturer.
		4. Difficulty level of online learning	5.10% strongly agree that online learning has high difficulty; 12.80% agree; 48.70% less agree; 33.30% disagree.
		5. I feel somewhat disappointed with online learning	12.80% strongly agree; 35.90% agree; 41,00% less agree; 10.30% disagree.

Based on the reduction of the questionnaire data in the form of direct entry, the distribution is factors that cause students to be less motivated are namely that they are not meeting face-to-face so that the students find it difficult to understand the material, especially in conceptual lecture subjects, many assignments given, and a reflection shortage on learning; the students are happy on online lectures on certain lecture subjects that give assignments in the form of products, especially related to the latest features such as kahoot, youtube, and others; and students do not take advantage of open learning sources or of the digital library, due to only relying on material from the lecturers.

Based on those outcomes, it shows that the majority of students is still not motivated to attend online lectures, due to the mindset forming both the students and the lecturers who consider that the online learning is only assignments and interaction shortage.

3) Students' Perception Towards Online Learning

Research data on students' perception towards learning can be illustrated through this following diagram.
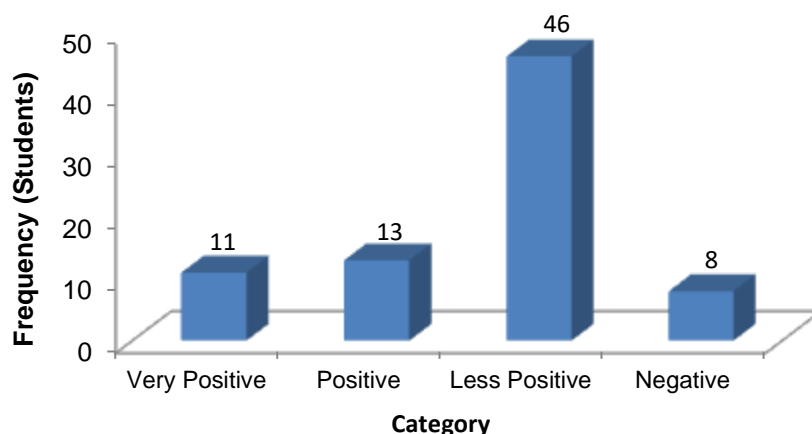
Fig 1. A Bar Chart of Students' Perception Frequency Towards Online
Learning.

Based on Figure 1, the conclusion is that most students (54%) still have a less positive view with regards to online lectures. The results of questions data reduction with direct answers, shall be obtained that the students are disappointed with online learning because they are given more assignments than explanations from the lecturers; lack of feedback and only 1 knowledge aspect delivered, namely cognitive, while affective and psychomotor are still lacking so that the learning is less interesting; and the students find themselves difficult to draw conclusions or relationships between what has been learned and what is in life and what shall be learned.

In line with the problem formulation and the data from the research results, the discussion of the research results can be described as follows.

1. The interaction pattern between the lecturers and students

The interaction pattern between the lecturers and students in this research is quite good, and yet the strategic point, feedbacks as well as interesting features should be improved. This is a main problem in online lecture learning strategies. The lecturers do not take full advantage of the features in the Learning Management System (LMS). This is due to lack of learning preparation by the lecturers. The learning preparation, especially in the field of online lectures is crucial. Just as Hartanto (2016) stated that the e-learning strategy includes four stages, i.e analysis, planning, implementation and evaluation. One thing that lecturers need to prepare is content. In online learning, the edusmart platform and vclass have the features that help to achieve online learning successful to generate excitement/motivation in learning. As stated by Prasojo and Riyanto (2011) that LMS has the features that can meet all the needs of users in terms of learning.

In addition to it, the learning evaluation also affects the achievement of effective interaction between the lecturers and students. Interactions can be done in the form of providing feedback, comments, assessments, input, criticism and suggestions on the students' work both in discussion forum activities, assignments, and chat. As said by Rusman (2011) that evaluation is not just spontaneously and incidentally assessing an activity, but is an activity to assess something in a planned, systematic, and directed manner based on a clear objective.

2. The Student Motivation Towards Online Learning

The analysis of student motivation towards online learning in this research harnesses the ARCS model. According to Keller (2016), the ARCS motivation model (attention, relevance, confidence, and satisfaction) has some advantages, namely that it can strive various strategies and methods in learning so that the students have an interest in learning (attention), a learning can have a relationship with the reality faced by the students, so that they can have readiness in the future (relevance), the students have a sense of comfort in learning, are confident (confidence), and they will have satisfaction when they are able to apply knowledge without having a feeling of fear (satisfaction).

The research results on the first indicator (attention) showed that students' distrust of learning was still in the poor category (46.20%), and 15.40% of the students stated that they do not believe in online learning from the lecturers. This shows that the students' unpreparedness in learning online is still very low. This is due to a sudden change in the learning process and because of the Covid-19 pandemic, they should fully be online. Furthermore, 28.20% of the students believed and 10.30% of the students strongly believed in online learning by lecturers. On the other hand, 38.50% of the students who believe in online learning by the lecturers, because several subjects in the Chemistry Education Study Program are held fully online with a synchronous and unsynchronous approach.

Based on the second indicator (relevance), the analysis is focused on the relationship between the methods used in online learning and the relationship between students' prior knowledge and the material presented in online learning. In this indicator, it seems that there is a balance of the percentage of students who agree (38.50%) in contrast with the students who disagree (47.40%) which indicates that the lecturers are sufficiently able to choose the right method on online learning in order that the students feel motivated to comprehend the lecture material.

Based on the third indicator (self-confidence) it was found that students answered 87.10% (disagree and disagree) if the material was found difficult through online learning. This shows a very good level of self-confidence in attending the online learning although the attention given tends to be weak. From the second descriptor, we can say that regarding the online learning, the students feel overwhelmed due to many assignments given, this is indicated by 61.50% saying that they disagree and 7.70% disagree.

The fourth indicator of satisfaction is to see the satisfaction level of the students to facing and implementing online learning. The first descriptor can explain that the students are not yet satisfied in working on the assignments given during the online learning. This is due to many tasks assigned to them. As shown from the results of the second descriptor, the student satisfaction is still seen low when they feel that they still do not understand the material although the lecturers have explained it to them. On the third descriptor regarding the appreciation for the learning process, 48.7% said that the online learning was not that difficult and 33.30% said that it was not difficult.

In view of the previous descriptor regarding the satisfaction of understanding the material, this outcome, thus, seems contradictory. In this case, what students actually mean in the third descriptor is the use of a platform which is user friendly or at least a platform used on online learning by the lecturers. The last statement is a statement that truly represents an indicator of the student satisfaction, i.e the disappointment on online learning. The percentage of disappointment is 51.30% less agree and disagree, then

48.70% of the students that agree and strongly agree. This shows that 51.30% of the students feel less satisfied towards online learning conducted by the lecturers. These results shall be used as an evaluation material in the next online learning management.

3. The Student Perception towards Online Learning

    Based on the reduction result of the student perceptions towards online learning, that the students still perceive that the online learning is not good and unpleasant. This is due to the process; online learning is cantered on the assignments without any meaningful feedback by the lecturers. As such the interaction and motivation patterns, the students 'perceptions were mostly less positive due to less attractive learning strategies delivered by the lecturers and the students' mindsets that had not changed yet.

    Based on the lecturers' viewpoint, the strategies used are less diverse, since the lecturers have not yet made much use of other interesting features such as kahoot, quizizz, Youtube, discussions, videos, projects, and others. From the student side, it is necessary to change the mindset that the learning is still centered on the lecturers, the major source of knowledge is from the lecturers. In this case, the lecturers have not been able to arouse the student's creativity by asking more questions and opinions, both through the discussion forums, chat, and through other features. The reduction result shows that the perception data of the students are different for each individual. This result is in line with Thoha (2011) statement that the results of each individual's perception are different, this is due to 2 factors, namely external factors (intensity, size, opposites, something new and familiar things, family background, information obtained, knowledge and the surrounding culture) and internal factors (learning process, feelings, attitudes, personality, prejudice, desires or expectations, physical conditions, mental disorders, values, and necessities as well as interest and self-motivation). The students with a less supportive environment (such as internet data, networks, etc.) greatly affect the perceptions of online learning.

4. Online Learning Obstacles

    Online learning is no longer something new in the education world, especially during the covid-19 pandemic, the learning process must really be done by harnessing the online learning method by fully online. Based on the survey results, there are several obstacles that arise during online learning in the Chemistry Education Study Program, especially obstacles from the aspect of human resources; and the learning process.

a. Human resources

    Even though in this research, it was found that 94.9% of the lecturers mastered IT and 91% of the students mastered IT, in fact the platforms used on online learning were still text-based such as that of the Whatsapp group. This is reinforced from the learning supporting media data as shown in Figure 2. below.
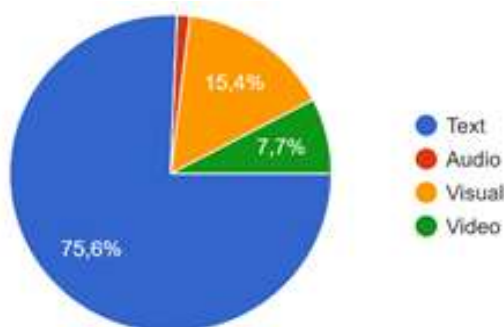
Fig 2. Supporting media on online learning

Figure 2. shows that the chat media usage such as WhatsApp is the most user-friendly media for them with various factors such as the usage of relatively-cheap internet data and also more practical, since it does not require us to use a laptop, as illustrated in the statement of one of the following respondents: "*The platforms usage for learning is still in small quantity and not good enough in supporting the teaching-learning process. But, on the other hand, many students have limited internet data /network that they experience obstacles when studying. and the learning that is only done via group WhatsApp shall end so that all can be connected*".

b. The Learning Process

The research result towards the obstacles in the online learning process is about how the learning process can take place. From the research result, it seems that there are still 11.5% who stated that lecturers did not convey the learning objectives. This can be an uneasiness for the students in constructing their knowledge, starting from managing the initial knowledge so that they will be ready to receive a new material to be digested in the schemas in their brain. The following is a figure of the learning strategies distribution used by the lecturers.
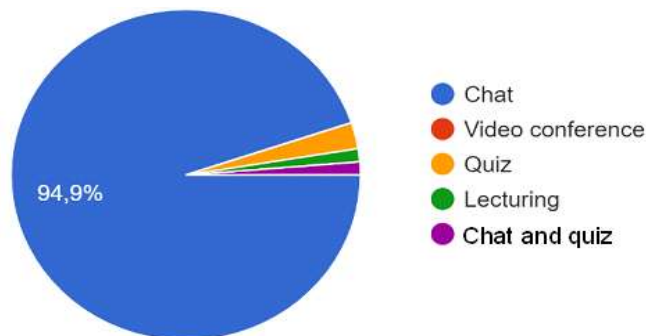

Figure 3. The leaning strategies delivered by the lecturers

Figure 3. shows that the use of chat as a learning strategy can not be used as a parameter whether a learning is deemed to be bad or good, but the chat makes up dominantly 94.9% as shown in Figure 3 can produce a domino effect in the learning process started from the difficulty of the students to understanding the learning even though the lecturer has given the explanation, not able to connect their prior knowledge with the material to be delivered, and the disappointment felt by the students with regards to online learning. Although the lecturers have attached both an explanation and a description through the edusmart or vclass platform, the students, however, still need an explanation which is *by design* in nature from the lecturers to replace the real existence of the lecturers. The research results also showed that the online learning was less interactive, it was indicated by the research results on the ongoing aspect of the discussion, which indicates that 23.1% answered that the discussions is non-interactive, especially for the lecture subjects that used a lot of calculations.

The last obstacle found in this research and needs to be considered is the feedback from the lecturers at the conclusion of the learning, both feedback on online activities and feedback from the given assignments, as shown in Figure 4.
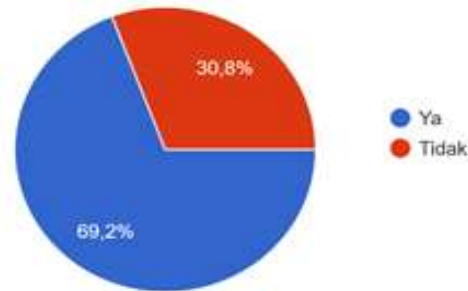
Figure 4. Reflection towards the problems experienced by
the students during online learning

Based on the Figure 4, that the lecturers give less reflection on learning. This has caused the students feeling lack of confidence towards their learning ability to acquire knowledge as well as the truthfulness of the scientific concepts they have obtained. Both lecturers, and students, however, should improve themselves in case they want the online learning successful.

▪ **CONCLUSION**

Based on the data analysis results and the discussion that are previously stated, the conclusion is thus as follows :
1. The interaction pattern between lecturers and students is quite good in terms of giving assignments and discussions. In terms of feedback and learning reflection, it, however, needs to be improved.
2. Students' perceptions regarding online learning were less positive, as indicated by the number of students becoming disappointed with the less interactive learning modules during online learning.
3. Students are still not motivated yet to take online lectures because they are limited by internet signals and perceive that these seem only assignments.
4. The obstacles that students experience during online learning are human resources, in this regard, the lecturer acts as a facilitator, and the learning process that is less interactive.

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